

## Ballast Water Management

The greatest threat our marine environment faces is the continued introduction and spread of aquatic nonindigenous species. Unlike other forms of pollution, once a nonindigenous species establishes itself it is here to stay. The potential effects on our food supply, economy, health and overall biodiversity are difficult to calculate, but are universally accepted as staggering. The economic disruption on the Great Lakes caused by the zebra mussel is estimated at \$5 billion. The green crab has recently spread from the East Coast to the Pacific Coast where it is damaging commercial aquaculture. And the list goes on.

The primary culprit for the introduction and spread of nonindigenous aquatic species is ships ballast water. Since it is used to maintain a ship's trim and stability, ballast water is critical to the operation of the ship and the safety of its crew. Over 21 billion gallons of foreign ballast water are discharged into U.S. water each year. That is over 2 million gallons an hour. The challenge we face is this. How do we stop the introduction and spread of nonindigenous species while maintaining vessel safety and allowing for the free flow of waterborne commerce?

Current federal regulations require vessels entering the Great Lakes and upper portions of the Hudson River to conduct an open-ocean exchange of their ballast water prior to using these waterways. During this procedure a vessel empties its ballast tanks and refills them with water that is less likely to contain potentially invasive species. This is currently defined as water from an area over 200 miles from shore and a depth of 2000 meters. This operational process has many drawbacks, including vessel safety concerns, but it is the best solution available.

The National Invasive Species Act (NISA) expanded the scope of Coast Guard regulations to include

all U.S. waters. Among other things, NISA requires the establishment of voluntary national guidelines to minimize the introduction and spread of aquatic nuisance species. Regulations will be published this spring implementing these guidelines which will require all vessels arriving from outside the U.S. exclusive economic zone to perform voluntary ballast water exchanges and report their ballast water management practices to the Coast Guard.

The Coast Guard's ballast water management program focuses on field level efforts.

Foremost is educating the maritime community about the irreversible impacts of invasive species. We are developing an exportable training package for Coast Guard personnel as well as modules that can be incorporated into ongoing public outreach efforts.

Next is the collection of data to determine the level of compliance with the voluntary national guidelines. The primary source of data will be the mandatory reports. To "ground truth" these reports we will conduct random boardings of vessels to interview ship personnel about their ballast water management practices and to draw a ballast water sample for analysis.

Ballast water exchange is viewed as an interim solution. Technology has yet to catch up with the problem. As the chair of the Aquatic Nuisance Species Task Force committee on Ballast Water and Shipping, we are working with a variety of interests to explore promising technologies. Among these are filtration, ultraviolet radiation, and heat treatment.

We continue to work at the International Maritime Organization to develop a legally binding international instrument for ballast water management. The organization is looking towards a diplomatic conference in the 2000-2001 biennium to adopt this instrument.

COAST GUARD HQ POINTS OF CONTACT –

CDR SCOTT NEWSHAM (G-MSO-4)

(202) 267-1354 SNEWSHAM@COMDT.USCG.MIL

LT MARY PAT MCKEOWN (G-MSO-4)

(202) 267-0500 MMCKEOWN@COMDT.USCG.MIL

LT DARREN DRURY (G-MOC-4)

(202) 267-0476 DDRURY@COMDT.USCG.MIL

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